

WHAT IS CLAIMED IS:

1. A semiconductor wafer comprising  
a silicon wafer which is doped with hydrogen, and  
said silicon wafer having a hydrogen concentration which is  
less than  $5 \times 10^{16} \text{ atcm}^{-3}$  and greater than  $1 \times 10^{12} \text{ atcm}^{-3}$ .
2. A method for producing a silicon semiconductor  
wafer comprising  
pulling a silicon single crystal from a melt, in  
the presence of hydrogen, using the Czochralski method,  
wherein the silicon single crystal is pulled under a hydrogen  
partial pressure of less than 3 mbar; and  
separating the silicon semiconductor wafer from the  
silicon single crystal.
3. The method as claimed in claim 2, comprising  
doping the silicon single crystal with nitrogen and  
producing a nitrogen concentration of  $5 \times 10^{12} \text{ atcm}^{-3}$  to  $5 \times 10^{15} \text{ atcm}^{-3}$ .
4. The method as claimed in claim 2, comprising

placing a cooled heat shield around the silicon single crystal; and

cooling the silicon single crystal with the heat shield, for a period of time within which the silicon single crystal cools from a temperature of 1050°C to a temperature of 900°C in less than 120 min.

5. The method as claimed in claim 2, comprising  
subjecting the semiconductor wafer to a heat treatment in an atmosphere which contains less than 3% by volume of hydrogen and the balance being argon.

6. The method as claimed in claim 2, comprising  
subjecting the semiconductor wafer to an oxidation treatment.